

About the role played by time in the perception of usefulness and ease of use by the users of a clinical information system

M.C. Mazzoleni, P. Baiardi, I. Giorgi, G. Franchi, R. Marconi, M. Cortesi
Medical Informatics Service, Psychology Unit, Salvatore Maugeri Foundation, IRCCS,
Medical Center of Pavia, Italy

Introduction. The present study deals with the assessment of the changes, due to a more lasting usage, in the satisfaction of the users – physician (PHY) and nurses (NU) - of the internally developed integrated patient-centered clinical information system they use on a mandatory basis.

Methods. Two confidential pen and paper questionnaires [1] – aimed at the inspection of perceived usefulness (PU) and ease of use (PEU) - were distributed to the personnel of the clinical units where the HIS was available, a first time about two months after the achievement of a steady state of the informatization in each single clinical unit (or after the beginning of the usage for new personnel), and a second time ten months later. The period of observation for each clinical unit was characterized by no perfective maintenance activities. Due to the turnover of personnel, the sample of users with pre-post controls is composed by 20 physicians and 43 nurses, corresponding to 80% and 65% respectively of the total number of users for each role. Nevertheless, the percentages of negative answers for this subgroup at the first control are analogous to the ones of the total first control group for both PHY and NU. Each item is measured on a 7-point Likert scale, and the scores (SCU, SCE) are the equally weighted sum of the six items for each scale (ranging from -18 to +18).

Results and discussion. More detailed results for each item are presented in the paper in the Extended Proceeding of '97AMIA Fall Symposium.

Perceived Usefulness Scale	PHY	NU
1..accomplish tasks more quickly	60	30
2.. improves my job performance	60	44
3.. increases my productivity	65	53
4...enhances my effectiveness	55	42
5.. makes it easier to do my job	60	44
6.Overall, I find ... useful	35	30
SCU	90	60

As regards PHY an enhancement of PU is shown by 90% of increased values of SCU at the second control, and in particular by 30% of answers that are transformed from negative to positive.

PEU was high at the first control, and 25% of SCE values are lower at the second control, but still in the positive range. The percentage of negative SCU and SCE have fallen to 0% respectively from 30% and 15%.

As regards nurses, 60% of them shows an enhanced PU, while SCE has 41% and 44% of respectively lower and higher values at the second control. Nevertheless, the median values for SCU and SCE have increased (7→12; 8→10). The percentages of negative scores for PU are decreased (16.3%→4.7%), while for PEU is slightly increased (14%→16.3%).

Conclusion. The study we have carried out to monitor the satisfaction of the users has revealed a positive role of time. The adjustment of the judgements after the period of observation reveals a more conscious approach to the system. The enhancement of the perceived usefulness for both physicians and nurses and of perceived ease of use, at least for physicians, documents that the system keeps on fitting the needs of the users, and that the situation is mature for the spreading of IT in the clinical environment. On the other hand the not so good results for perceived ease of use for nurses have revealed a potential problem, allowing an eventual intervention.

[1] Davis F. MIS Quarterly, 1989; 13:319-340

Perceived Ease of Use Scale	PHY	NU
1.Learning to operate .. easy for me	40	19
2.... easy to get .. to do what I want	50	35
3... interaction .. clear	25	23
4... flexible to interact with	40	35
5... easy for me to become skilful..	30	30
6.Overall, I find .. easy to use	30	25
SCE	60	44

Fig. 1 The two questionnaires with the percentages of improved answers at the second control to each item and to the scores for physicians and nurses